REMARKS

Claims 1-24 were originally filed. Claims 2-16, 21 and 24 were withdrawn from consideration. Claims 1, 17-20, 22 and 23 are pending in the current application. Examiner made final the restriction requirement and clarified that the Group II (non-elected) invention is encompassed by Claim 21 and 24 and not claims 22 and 23.

Applicant met with Examiner 7/10/03 at which time it was agreed upon that if sodium carbonate was excluded from the scope of the Claims, Applicant would be patentably distinct from Wu. Applicant has Amended Claim 1 and 22 to incorporate "consisting essentially of" Claim language and also to define the water soluble salts taught by Applicant.

Additionally, Applicant Amended Claim 23 to better clarify the scope of the claim. Applicant contends no new matter was added.

35 U.S.C. § 102(b) as anticipated by or in the alternative, under 35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902) and additionally over Brahm et al. U.S. Pat. No. 4,242,318.

Examiner rejects Claims 1, 19, 22 and 23 stating "Wu discloses an aqueous acid stabilized CaCO3 filler dispersion" and that "the dispersion is stabilized by the addition of sodium carbonate and weak acids such as polyacrylic acid and phosphoric acid." Examiner continues that "the pH of the dispersion is below 7" and that "the present claims by employing claim language "comprising" is open to the presence of sodium carbonate and thus the claimed invention is anticipated or at the least, obviously shown by Wu.

Wu teaches an acid resistant calcium carbonate that includes sodium carbonate together with a mixture of two or more weak acids in admixture with the calcium carbonate Col. 2, lines 8-12 and col. 3, lines 21-26) and that it is "the inclusion of the sodium carbonate and the mixture of two or more weak acids [that] confers a higher degree of stability and acid resistance for calcium carbonate..."(col. 2, lines 14-17).

Applicant teaches at page 5, lines 7-9, an acid stabilized calcium carbonate slurry that includes one of;

- a water soluble salt
- a weak acid; or a
- chelating agent; or
- certain mixtures thereof.

Wu teaches 1-6 percent sodium carbonate together with at least 0.1 percent of a mixture of two or more weak acids (col. 8, lines 7-11). Applicant contends Wu does not anticipate the invention disclosed in the present application because Applicant does not teach treating calcium carbonate with sodium carbonate and two weak acids.

Additionally, Applicant amended Claim 1 and Claim 22 to include "consisting essentially of" claim language versus the open ended "comprising of" claim language, to define the scope of the claims. Also, Applicant has defined which water soluble salts can be used in the present invention. Sodium carbonate, a critical component of Wu is excluded from being a part of Applicants' teachings. Support for the Amendment to Claims 1 and 22 are found on page 8, second paragraph of specification.

Additionally, Examiner rejects Claim 23 stating the claim "depends from a method of acid stabilizing a filler slurry" and that "this claim is treated as a product by process of making the filler used in the claimed method of acid stabilizing the dispersion of the filler. The claimed CaCO3 filler used is precipitated CaCO3 filler and therefore does not patentably define over the precipitated filler of Wu."

Claim 23 is dependent upon Claim 22, which has been amended to include "consisting essentially of", claim language instead of the open ended "comprising of" claim language. Claim 22 is now believed to be in condition for allowance therefore, dependent Claim 23 should also be allowable.

35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902) in view of Brahm et al. U.S. Pat. No. 4,242,318

Examiner states in regard to Claim 23, "the claimed CaCO3 filler used is precipitated CaCO3 filler and therefore does not patentably define over the precipitated CaCO3 filler of Wu," and that "the claimed method is conventional in the art for making precipitated CaCO3 filler and thus, would have been obvious...see Brahm."

Claim 23 is dependent on Claim 22, which has been amended to include that the calcium carbonate slurry consists of water, calcium carbonate, and an acid-stabilizer selected from..." a specific group. It is the post processing of the calcium carbonate that distinguishes Applicants'' invention from Wu's.

Brahm et al. teach a process for the preparation of an aqueous suspension of calcium carbonate by carbonating a source of calcium ions and a source of carbonate ions in the presence of a polyelectrolyte; separating a wet concentrate of calcium carbonate from the dilute aqueous suspension of calcium carbonated by a mechanical separating means; and fluidizing and homogenizing the wet concentrate in the presence of a dispersing agent to obtain an aqueous suspension of calcium carbonate.

Brahm et al. teaches a process for the concentration of calcium carbonate slurry and not a synthesis process.

Brahm et al. disclose that the calcium carbonate in his invention can be crystallized in an aqueous medium by any means which is in itself known, for example by reacting a calcium salt solution with an ammonium carbonate or alkali metal carbonate solution.

However, Brahm et al. do not disclose treatment of calcium carbonate with an acid

stabilizer and one of ordinary skill in the art would not expect Brahm's concentrated calcium carbonate to be capable of use in an acidic environment, i.e. to make acid paper. One of ordinary skill in the art would not be motivated to eliminate the sodium carbonate and two weak acids of Wu and replace it with a water soluble calcium salt, a weak acid, a chelating agent, a mixture of a water soluble calcium salt and a weak acid, or a mixture of a water soluble calcium salt and a chelating agent.

Therefore, it would not be obvious to replace the sodium carbonate and two weak acids of Wu's disclosure for the acid stabilizers taught by Applicant to produce an acid stabilized calcium carbonate slurry.

35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902).

Examiner rejected Claim 17 and 18 as being unpatentable over Wu stating "the claimed amount of weak acid would have been [an] obvious optimization of the acid stabilization of the CaCO3 filler dispersion or slurry."

Applicant disagrees with Examiner and contends Applicant's invention is not an obvious optimization of the acid stabilization of the slurry. Wu teaches it is the "inclusion of the sodium carbonate and the mixture of two or more weak acids [that] confers a higher degree of stability and acid resistance..." (col. 2, lines14-16). Sodium carbonate and at least two weak acids are required to give the benefits Wu teaches and one of ordinary skill in the art would not eliminate a critical element from Wu to practice Applicants'' invention.

Wu teaches that "the acid resistance conferred upon the calcium carbonate compositions of the present invention is a result of the inactivation of the surface of the calcium carbonate by the addition of the sodium carbonate and the mixtures of the two weak acids. The combination of the two weak acids apparently results in a synergistic relationship (col. 3, lines 11-17).

Wu also teaches "that a greater stability and acid resistance is afforded by the use of two acids when compared to the same weight percent of a single acid (col. 3, lines18-20).

Therefore, it would not be obvious, nor is there any motivation, to substitute the components of Applicants' invention; a water-soluble salt; a weak acid; a chelating agent; or certain mixtures thereof because you would not be getting the synergistic effect that the combination of the two acids impart would be absent.

Applicant has amended Claim 1 and 22 by replacing "comprising" claim language with "consisting of" thereby differentiating his invention from that of Wu.

CONCLUSION

Applicant has amended Claim 1 and 22 to exclude the use of sodium carbonate as a water soluble salt in the present invention. Therefore, Applicant believes the technology taught by him is patentably distinct over Wu.

Should the Examiner not agree with the Applicants' position, then a personal interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

A two (2) month extension fee is believed due for the filing of this amendment. Should any other fees be required, however, please charge such fees to Minerals Technologies Inc. Deposit Account No. 13-3639.

Respectfully submitted,

Michael J. Herman

Michael J. Herman
Registration No. 51,289
Agent for Applicant

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DN 96-006 D1
MJP/MJH

In re application of:

Donald K. Drummond :

Application No.: 09/826,062 : Group No.: 1731

Filed: 04/04/2001 : Examiner: Peter Chin

For: THE USE OF CALCIUM CARBONATE IN AN ACIDIC AQUEOUS MEDIA

Assistant Commissioner for Patents
Washington, DC 20231

Amendment Pursuant to 37 CFR § 1.111

Sir:

This request is in response to the office Action dated February 28, 2003, in which Claims 1 and 17-24 are pending in the application. Claims 20, 21 and 24 were withdrawn from consideration. Examiner rejected claims 1, 17-19, 22 and 23. Applicant respectfully requests that Examiner reconsider the application in view of the following Amendments and accompanying remarks and to enter a Notice of Allowance.

In the Claims:

1. (First Amendment) An acid-stabilized calcium carbonate slurry for use in making acid paper, [comprising] consisting essentially of water, calcium carbonate, and an acid-stabilizer selected from a group consisting of a water soluble calcium salt, a weak acid, a chelating agent, a mixture of a water soluble calcium salt and a weak acid, a mixture of a water soluble calcium salt and a chelating agent, wherein the water soluble calcium salt is selected from the group consisting of calcium chloride, calcium sulfate, calcium acetate, calcium nitrate and calcium citrate, and wherein the stabilizer is present in an amount sufficient to provide an aqueous calcium carbonate slurry having an increased calcium ion concentration and pH of less than 7.

17. The acid-stabilized calcium carbonate slurry of Claim 1, wherein the acid stabilizer is a weak acid capable of chelating calcium ion, present in a concentration of from about 0.001 to about 1000 millimolar.

18. The acid-stabilized calcium carbonate slurry of Claim 17, wherein the acid stabilizer is a weak acid capable of chelating calcium ion, present in a concentration of from about 0.01 to about 100 millimolar.

19. The acid-stabilized calcium carbonate slurry of Claim 17, wherein the weak acid is a polycarboxylic acid, polyacrylic acid, sulfonic acid, polyphosphonic acid, or a compound containing a phosphonic acid.

20. The acid-stabilized calcium carbonate slurry of Claim 19, wherein the weak acid is ethylenediaminetetraacetic acid (EDTA), nitrilotriacetic acid (NTA), diethylenetriaminepentaacetic acid (DTPA), or nitrilotri(methylene)triphosphonic acid.

22. A method for making an acid-stabilized calcium carbonate slurry having a pH of less than 7, which comprises: forming a slurry consisting essentially of water, calcium carbonate, and a acid-stabilizer selected from a group consisting of a water soluble salt, a weak acid, a chelating agent,

wherein the water soluble calcium salt is selected from the group consisting of calcium chloride, calcium sulfate, calcium acetate, calcium nitrate and calcium citrate, and, wherein the stabilizer is present in an amount sufficient to provide an aqueous calcium carbonate slurry having an increased calcium ion concentration and a pH of less than 7.

23. (First Amendment) The method of Claim 22, [further comprising] wherein the calcium carbonate is obtained by first carbonating an aqueous slurry of calcium hydroxide to form a precipitated calcium carbonate slurry.

REMARKS

Claims 1-24 were originally filed. Claims 2-16 were withdrawn from consideration. Claims 1 and 17-19, 22 and 23 are pending in the current application. Examiner made final the restriction requirement and clarified that the Group II (non-elected) invention is encompassed by Claim 21 and 24 and not claims 22 and 23.

General Comments:

Applicant met with Examiner 7/10/03 at which time it was agreed upon that if sodium carbonate was excluded from the scope of the Claims, Applicant would be patentably distinct from Wu. Applicant has Amended Claim 1 and 22 to incorporate "consisting essentially of" Claim language and also to define the water soluble salts taught by Applicant.

Additionally, Applicant Amended Claim 23 to better clarify the scope of the claim. Applicant contends no new matter was added.

35 U.S.C. § 102(b) as anticipated by or in the alternative, under 35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902) and additionally over Brahm et al. U.S. Pat. No. 4,242,318.

Examiner rejects Claims 1, 19, 22 and 23 stating "Wu discloses an aqueous acid stabilized CaCO3 filler dispersion" and that "the dispersion is stabilized by the addition of sodium carbonate and weak acids such as polyacrylic acid and phosphoric acid." Examiner continues that "the pH of the dispersion is below 7" and that "the present claims by employing claim language "comprising" is open to the presence of sodium carbonate and thus the claimed invention is anticipated or at the least, obviously shown by Wu.

Wu teaches an acid resistant calcium carbonate that includes sodium carbonate together with a mixture of two or more weak acids in admixture with the calcium carbonate Col. 2, lines 8-12 and col. 3, lines 21-26) and that it is "the inclusion of the sodium carbonate and the mixture of two or more weak acids [that] confers a higher degree of stability and acid resistance for calcium carbonate..."(col. 2, lines 14-17).

Applicant teaches at page 5, lines 7-9, an acid stabilized calcium carbonate slurry that includes one of;

- a water soluble salt
- a weak acid; or a
- chelating agent; or
- certain mixtures thereof.

Wu teaches 1-6 percent sodium carbonate together with at least 0.1 percent of a mixture of two or more weak acids (col. 8, lines 7-11). Applicant contends Wu does not anticipate the invention disclosed in the present application because Applicant does not teach treating calcium carbonate with sodium carbonate and two weak acids.

Additionally, Applicant amended Claim 1 and Claim 22 to include "consisting essentially of" claim language versus the open ended "comprising of" claim language, to define the scope of the claims. Also, Applicant has defined which water soluble salts can be used in the present invention. Sodium carbonate, a critical component of Wu is excluded from being a part of Applicants' teachings. Support for the Amendment to Claims 1 and 22 are found on page 8, second paragraph of specification.

Additionally, Examiner rejects Claim 23 stating the claim "depends from a method of acid stabilizing a filler slurry" and that "this claim is treated as a product by process of making the filler used in the claimed method of acid stabilizing the dispersion of the filler. The claimed CaCO3 filler used is precipitated CaCO3 filler and therefore does not patentably define over the precipitated filler of Wu."

Claim 23 is dependent upon Claim 22, which has been amended to include "consisting essentially of", claim language instead of the open ended "comprising of" claim language. Claim 22 is now believed to be in condition for allowance therefore, dependent Claim 23 should also be allowable.

35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902) in view of Brahm et al. U.S. Pat. No. 4,242,318

Examiner states in regard to Claim 23, "the claimed CaCO3 filler used is precipitated CaCO3 filler and therefore does not patentably define over the precipitated CaCO3 filler of Wu," and that "the claimed method is conventional in the art for making precipitated CaCO3 filler and thus, would have been obvious...see Brahm."

Claim 23 is dependent on Claim 22, which has been amended to include that the calcium carbonate slurry consists of water, calcium carbonate, and an acid-stabilizer selected

from..." a specific group. It is the post processing of the calcium carbonate that distinguishes Applicants'' invention from Wu's.

Brahm et al. teach a process for the preparation of an aqueous suspension of calcium carbonate by carbonating a source of calcium ions and a source of carbonate ions in the presence of a polyelectrolyte; separating a wet concentrate of calcium carbonate from the dilute aqueous suspension of calcium carbonated by a mechanical separating means; and fluidizing and homogenizing the wet concentrate in the presence of a dispersing agent to obtain an aqueous suspension of calcium carbonate.

Brahm et al. teaches a process for the concentration of calcium carbonate slurry and not a synthesis process.

Brahm et al. disclose that the calcium carbonate in his invention can be crystallized in an aqueous medium by any means which is in itself known, for example by reacting a calcium salt solution with an ammonium carbonate or alkali metal carbonate solution.

However, Brahm et al. do not disclose treatment of calcium carbonate with an acid stabilizer and one of ordinary skill in the art would not expect Brahm's concentrated calcium carbonate to be capable of use in an acidic environment, i.e. to make acid paper. One of ordinary skill in the art would not be motivated to eliminate the sodium carbonate and two weak acids of Wu and replace it with a water soluble calcium salt, a weak acid, a chelating agent, a mixture of a water soluble calcium salt and a weak acid, or a mixture of a water soluble calcium salt and a chelating agent.

Therefore, it would not be obvious to replace the sodium carbonate and two weak acids of Wu's disclosure for the acid stabilizers taught by Applicant to produce an acid stabilized calcium carbonate slurry.

35 U.S.C. § 103(a) as obvious over Wu (U.S. Pat. No. 5,647,902).

Examiner rejected Claim 17 and 18 as being unpatentable over Wu stating "the claimed amount of weak acid would have been [an] obvious optimization of the acid stabilization of the CaCO3 filler dispersion or slurry."

Applicant disagrees with Examiner and contends Applicant's invention is not an obvious optimization of the acid stabilization of the slurry. Wu teaches it is the "inclusion of the sodium carbonate and the mixture of two or more weak acids [that] confers a higher degree of stability and acid resistance..." (col. 2, lines14-16). Sodium carbonate and at least two weak acids are required to give the benefits Wu teaches and one of ordinary skill in the art would not eliminate a critical element from Wu to practice Applicants'' invention.

Wu teaches that "the acid resistance conferred upon the calcium carbonate compositions of the present invention is a result of the inactivation of the surface of the calcium carbonate by the addition of the sodium carbonate and the mixtures of the two weak acids. The combination of the two weak acids apparently results in a synergistic relationship (col. 3, lines 11-17). Wu also teaches "that a greater stability and acid resistance is afforded by the use of two acids when compared to the same weight percent of a single acid (col. 3, lines18-20).

Therefore, it would not be obvious, nor is there any motivation, to substitute the components of Applicants'' invention; a water-soluble salt; a weak acid; a chelating agent; or certain mixtures thereof because you would not be getting the synergistic effect that the combination of the two acids impart would be absent.

Applicant has amended Claim 1 and 22 by replacing "comprising" claim language with "consisting of" thereby differentiating his invention from that of Wu.

CONCLUSION

Applicant has amended Claim 1 and 22 to exclude the use of sodium carbonate as a water soluble salt in the present invention. Therefore, Applicant believes the technology taught by him is patentably distinct over Wu.

Should the Examiner not agree with the Applicants' position, then a personal interview is respectfully requested to discuss any remaining issues and expedite the eventual allowance of the application.

A two (2) month extension fee is believed due for the filing of this amendment. Should any other fees be required, however, please charge such fees to Minerals Technologies Inc. Deposit Account No. 13-3639.

Respectfully submitted,

Michael J. Herman

Michael J. Herman
Registration No. 51,289
Agent for Applicant

Version With Markings Showing Changes Made

1. (First Amendment) An acid-stabilized calcium carbonate slurry for use in making acid paper, [comprising] consisting essentially of water, calcium carbonate, and an acid-stabilizer selected from a group consisting of a water soluble calcium salt, a weak acid, a chelating agent, a mixture of a water soluble calcium salt and a weak acid, a mixture of a water soluble calcium salt and a chelating agent, wherein the water soluble calcium salt is selected from the group consisting of calcium chloride, calcium sulfate, calcium acetate, calcium nitrate and calcium citrate, and wherein the stabilizer is present in an amount sufficient to provide an aqueous calcium carbonate slurry having an increased calcium ion concentration and pH of less than 7.

22. A method for making an acid-stabilized calcium carbonate slurry having a pH of less than 7, which comprises: forming a slurry consisting essentially of water, calcium carbonate, and a acid-stabilizer selected from a group consisting of a water soluble salt, a weak acid, a chelating agent, wherein the water soluble calcium salt is selected from the group consisting of calcium chloride, calcium sulfate, calcium acetate, calcium nitrate and calcium citrate, and, wherein the stabilizer is present in an amount sufficient to provide an aqueous calcium carbonate slurry having an increased calcium ion concentration and a pH of less than 7.

23. (First Amendment) The method of Claim 22, [further comprising] wherein the calcium carbonate is obtained by first carbonating an aqueous slurry of calcium hydroxide to form a precipitated calcium carbonate slurry.

Printer Friendly

09/826,062 Use of calcium carbonate in an acidic aqueous media

Transaction History

Date	Contents Description
10-03-2003	Mail Abandonment for Failure to Respond to Office Action
10-01-2003	Abandonment for Failure to Respond to Office Action
02-28-2003	Mail Non-Final Rejection
02-24-2003	Non-Final Rejection
12-21-2002	Date Forwarded to Examiner
12-18-2002	Response to Election / Restriction Filed
11-20-2002	Mail Restriction Requirement
11-18-2002	Requirement for Restriction / Election
07-19-2002	Application Dispatched from OIPE
07-09-2002	Application Is Now Complete
04-04-2001	Additional Application Filing Fees
04-04-2001	Drawing Preliminary Amendment
07-03-2002	Pre-Exam Office Action Withdrawn
06-06-2002	Petition Decision - Granted in Part
03-27-2002	Petition Entered
01-28-2002	Notice of Incomplete Application - Filing Date Not Assigned
04-04-2001	Preliminary Amendment
08-29-2001	Case Docketed to Examiner in GAU
08-12-2001	Transfer Inquiry
04-25-2001	Application Dispatched from OIPE
04-20-2001	Correspondence Address Change
04-18-2001	IFW Scan & PACR Auto Security Review
04-04-2001	Initial Exam Team nn

Close Window

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DN 96-006 D1
MJH/jag

In re application of: DRUMMOND

Application No.: 09/826,062 Art Unit.: 1731

Filed: 04/04/2001 Examiner: CHIN, Peter

For: THE USE OF CALCIUM CARBONATE IN AN ACIDIC AQUEOUS MEDIA

Mail Stop PETITION
Commissioner for Patents
P.O. Box 1450
Arlington, Virginia 22313-1450

EXPRESS MAIL CERTIFICATE

"Express Mail" label number EK793617106US
Date of Deposit: February 21, 2005

I hereby state that the following *attached* paper(s) or fee(s)

PETITION TO THE COMMISSIONER FOR PATENTS FOR REVIVAL OF AN APPLICATION UNINTENTIONALLY ABANDONED AT NO FAULT OF THE APPLICANT – 2 pages
COPIES OF SUPPORTING DOCUMENTATION – 34 pages

Date: February 21, 2005

Andrea Rennig